AMENDMENTS TO THE CLAIMS

Please cancel Claims 1 – 24 and 37 - 48 as indicated below.

Please amend Claims 25, 31, 32, and 36 as indicated below.

Please add new Claims 49 – 80 as indicated below.

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Canceled)
11. (Canceled)
12. (Canceled)
13. (Canceled)
14. (Canceled)
15. (Canceled)
16. (Canceled)
17. (Canceled)
18. (Canceled)
19. (Canceled)
20. (Canceled)
21. (Canceled)
22. (Canceled)
23. (Canceled)
24. (Canceled)
25. (Currently amended) A sensor for implantation within a blood vessel comprising:

a support structure;

a sensor housing carried by the support structure; and

a sensing surface exposed to the exterior of the housing;

wherein the sensor is configured to detect nitric oxide ~~or a nitric oxide metabolite~~, and wherein the ~~sensor can be implanted for a period of at least one week~~sensing surface includes a layer that minimizes the formation of thrombus.

26. (Original) An implantable sensor as in Claim 25, wherein the support structure comprises a stent.

27. (Original) An implantable sensor as in Claim 25, wherein the support structure comprises a catheter.

28. (Original) An implantable sensor as in Claim 25, wherein the support structure comprises an expandable metal mesh.

29. (Original) An implantable sensor as in Claim 25, wherein the sensor housing is positioned on the luminal side of the support structure.

30. (Original) An implantable sensor as in Claim 25, wherein the sensor housing is positioned within an opening on the side wall of the support structure.

31. (Currently amended) An implantable sensor as in Claim 25, further comprising a tubular sleeve surrounding the ~~tubular~~ support structure.

32. (Currently amended) An implantable sensor as in Claim 31, wherein the tubular sleeve is on the radially outwardly facing surface of the ~~tubular~~ support structure.

33. (Original) An implantable sensor as in Claim 31, wherein the tubular sleeve comprises ePTFE.

34. (Original) An implantable sensor as in Claim 25, wherein the sensor comprises an ion-selective electrode.

35. (Original) An implantable sensor as in Claim 25, wherein the sensor is selected from the group consisting of amperometric electrodes, porphyrinic electrodes, and microchip electrodes.

36. (Currently amended) An implantable sensor as in Claim 25, further containing an analyte permeable membrane ~~and an enzyme gel layer~~.

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Canceled)

44. (Canceled)

45. (Canceled)

46. (Canceled)

47. (Canceled)

48. (Canceled)

49. (New) An implantable sensor as in Claim 25, wherein the layer comprises an anticoagulant.

50. (New) An implantable sensor as in Claim 25, wherein the anticoagulant is heparin.

51. (New) An implantable sensor as in Claim 25, wherein the layer comprises a hydrogel.

52. (New) An implantable sensor as in Claim 51, wherein the hydrogel is selected from the group consisting of poly (ethylene glycol), poly(N-vinyl pyrrolidone), and poly(hydroxyethylmethacrylate).

53. (New) An implantable sensor as in Claim 25, wherein the layer releases a pharmacological agent.

54. (New) An implantable sensor as in Claim 53, wherein the pharmacological agent inhibits cell proliferation or migration.

55. (New) A sensor for implantation within a blood vessel comprising:

a support structure;

a sensor housing carried by the support structure; and

a sensing surface exposed to the exterior of the housing;

wherein the sensor is configured to detect nitric oxide and a nitric oxide metabolite.

56. (New) An implantable sensor as in Claim 55, wherein the support structure comprises a stent.

57. (New) An implantable sensor as in Claim 55, wherein the support structure comprises a catheter.

58. (New) An implantable sensor as in Claim 55, wherein the support structure comprises an expandable metal mesh.

59. (New) An implantable sensor as in Claim 55, wherein the sensor housing is positioned on the luminal side of the support structure.

60. (New) An implantable sensor as in Claim 55, wherein the sensor housing is positioned within an opening on the side wall of the support structure.

61. (New) An implantable sensor as in Claim 55, further comprising a tubular sleeve surrounding the support structure.

62. (New) An implantable sensor as in Claim 61, wherein the tubular sleeve is on the radially outwardly facing surface of the support structure.

63. (New) An implantable sensor as in Claim 61, wherein the tubular sleeve comprises ePTFE.

64. (New) An implantable sensor as in Claim 55, wherein the sensor comprises an ion-selective electrode.

65. (New) An implantable sensor as in Claim 55, wherein the sensor is selected from the group consisting of amperometric electrodes, porphyrinic electrodes, and microchip electrodes.

66. (New) An implantable sensor as in Claim 55, further containing an analyte permeable membrane and an enzyme gel layer.

67. (New) An implantable sensor as in Claim 66, wherein the enzyme gel layer comprises nitrate reductase.

68. (New) A sensor for implantation within a blood vessel comprising:

a support structure;

a sensor housing carried by the support structure; and

a sensing surface exposed to the exterior of the housing;

wherein the sensor is configured to detect a nitric oxide metabolite.

69. (New) An implantable sensor as in Claim 68, wherein the support structure comprises a stent.

70. (New) An implantable sensor as in Claim 68, wherein the support structure comprises a catheter.

71. (New) An implantable sensor as in Claim 68, wherein the support structure comprises an expandable metal mesh.

72. (New) An implantable sensor as in Claim 68, wherein the sensor housing is positioned on the luminal side of the support structure.

73. (New) An implantable sensor as in Claim 68, wherein the sensor housing is positioned within an opening on the side wall of the support structure.

74. (New) An implantable sensor as in Claim 68, further comprising a tubular sleeve surrounding the support structure.

75. (New) An implantable sensor as in Claim 74, wherein the tubular sleeve is on the radially outwardly facing surface of the support structure.

76. (New) An implantable sensor as in Claim 74, wherein the tubular sleeve comprises ePTFE.

77. (New) An implantable sensor as in Claim 68, wherein the sensor comprises an ion-selective electrode.

78. (New) An implantable sensor as in Claim 68, wherein the sensor is selected from the group consisting of amperometric electrodes, porphyrinic electrodes, and microchip electrodes.

79. (New) An implantable sensor as in Claim 68, further containing an analyte permeable membrane and an enzyme gel layer.

80. (New) An implantable sensor as in Claim 79, wherein the enzyme gel layer comprises nitrate reductase.